

ARGUMENTS

Claims 1-7, 10, and 12-14 stand as rejected under 35 USC §112, first paragraph. It is the Examiner's position that:

“toughness retained of at least 30%;

“an elastomeric component of less than 28% by weight of polymer;”

“grafting level greater than 130%,” and

“gel content of greater than 10%”

are not disclosed in the specification.

It is the Applicants' position that the limitations cited by the Examiner are present in the application. The “toughness retained of at least 30%” can be found in the (amended) Table 1. Therein, a series of % toughness retained values is disclosed to be 22.5, 22.8, 36.8 and 44.3. Clearly the range of at least 30% is disclosed therein. The “an elastomeric component of less than 28% by weight of polymer” limitation is found in the amended paragraph spanning pages 5 & 6 wherein it is stated that “In the composition, the portion of the soft component in the polymer, which has been modified to increase its impact strength, is less than 28% by weight based on the polymer, the soft component being defined as the toluene-insoluble constituent of the polymer, which has been modified to increase its impact strength, minus any pigment which may be present.” The “grafting level greater than 130%” limitation can be found in Table II wherein it is disclosed that Grafting percent is 130% and 184%. The “gel content of greater than 10%” limitation can be found in Tables I & II wherein the stated range is within the specific values of 9.7, 12.5, 23.3, 24.8, 24.5, and 22.8 are displayed.

Claims 1-7, 10, 12, and 14 stand as rejected under 35 USC §112, second paragraph. It is the Examiner's position that “toughness retained” is not art recognized and is therefore unclear. It is

also the Examiner's position that "an elastomeric component of less than 28% by weight of polymer" is also unclear.

It is the Applicants' position that these claims are allowable under 35 USC §112, second paragraph. The term toughness retained is simply a variation of the term retained toughness which is well known in the art. Exemplary uses of this term in references include:

The films were cut into specimens 0.5 inches wide and 6 inches long. These specimens were tested in accordance with ASTM D882-83 on a Model 1011 Instron tensile tester. Tests were performed on the samples before and after aging in a 70[deg] C. forced air oven. The data in FIG. 1 compares the control film's retained toughness to the film containing 6% starch, 2% Diene-35, 150 ppm manganese metal, and 75 ppm ferric metal. The retained toughness is calculated by dividing the toughness value after aging by the toughness value before aging and multiplying by 100. The toughness is the work required to break a sample. Mathematically it is the stress integrated with respect to strain. The aging at elevated temperatures allows acceleration of the auto-oxidation process allowing tests results to be available in a matter of weeks.
Pat. No. 5212219

The compositions of the present invention comprise a copolymer, namely a copolyester, having a low polarity block segment incorporated into the backbone of the copolymer. Such compositions possess unexpected properties including superior initial and retained ("aged") adhesion. The compositions also provide unexpected improvements in retained toughness, solvent resistance, wettability, and hydrolytic stability. These compositions are particularly suitable for use as adhesive and coating materials.
WO-A 2001081448

The smaller particle size of the cis-butadiene/styrene rubber toughened polystyrenes is deemed to be responsible for the improved gloss and transparency observed with these impact polystyrenes but does not explain the retained toughness. Thus, if the particle size of impact polystyrenes made either with GRS type rubbers or with cis-polybutadiene rubbers is reduced to the size of 2 to 2.5 microns, the toughness of the materials is reduced to the point that the polymer would not be acceptable for use as an impact polystyrene.
Pat. No. 3929936

It is also the Applicants' position that "an elastomeric component of less than 28% by weight of polymer" is not unclear. The relevant portion of the specification is found in the preliminary amendment of the paragraph bridging pages 5 & 6:

In the composition, the portion of the soft component in the polymer, which has been modified to increase its impact strength, is less than 28% by weight based on the polymer, the soft component being defined as the toluene-insoluble constituent of the polymer, which has been modified to increase its impact strength, minus any pigment which may be present.

This sentence is indeed clear, especially if parsed without the highlighted clauses that were likely put into the sentence for purposes of antecedent basis:

In the composition, the portion of the soft component in the polymer, **which has been modified to increase its impact strength**, is less than 28% by weight based on the polymer, the soft component being defined as the toluene-insoluble constituent of the polymer, **which has been modified to increase its impact strength**, minus any pigment which may be present.

So that the sentence reads:

In the composition, the portion of the soft component in the polymer is less than 28% by weight based on the polymer, the soft component being defined as the toluene-insoluble constituent of the polymer, minus any pigment which may be present.

The examiner also objects to the use of the term polymer material as opposed to polymer, but the Applicants respectfully assert that polymer and polymer material have ordinary meanings and that the meaning of these terms are clear, namely the polymer material is a material including a polymer component. These terms read in context with the specification also clearly show this.

The Examiner objects to the grafting percentage being unit-less. Applicants respectfully assert that percent grafting is unit-less and cite the following patents for this position:

Degree of Grafting (% Graft:Rubber Ratio) = (Wt.% Insoluble PS/%Rubber) x 100
EP-A 1044000994

Degree of grafting (%) = [<amount of vinyl copolymer grafting on rubber polymer>/<rubber content of graft copolymer>] * 100
EP-A 1312000644

$(m[1] - m[0]) * 100 / m[0] = \text{extent of grafting (\%)}$
 $m[0] = \text{weight of original sample} \quad m[1] = \text{weight of grafted sample}$
EP-A 6294000041

% Grafting = W Grafted PS /W Rubber/ = (W (I) - W (R)*) /W (R) = (100 - % Rubber) x 100 /% Rubber
EP-B 2547000006

Claims 1-14 stand as rejected under 35 USC §103 (a) as being unpatentable over U.S. Patent No. 4,861,827 (SOSA), optionally in view of: U.S. Patent No. 5,861,455 (REDDY) and the article cited by the Applicants (ECHTE) and further optionally in view of U.S. Patent No. 5,762,149 (SANCHEZ). It is the Examiner's position that the these references,

taken in combinations, disclose each element of the Claims 1-14 and that it would have been obvious to one of ordinary skill to make that combination.

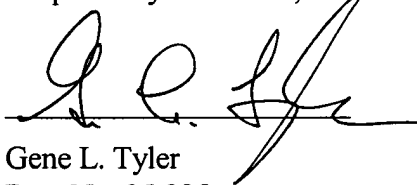
It is the Applicants' position that the claims of the present invention are not obvious. While the Applicants do not necessarily admit to or agree with the Examiner's interpretation of the prior art, even assuming that the Examiner is correct, one of ordinary skill in the art would have been, at most, motivated to experiment by the Examiner's references. Such a person would not have had any certainty of achieving the surprising results of the present invention.

Table I discloses that the % Toughness Retained (%TR) of the present invention is, in C 36.8 as compared to samples A & B wherein the %TR is about 22.7, a 60% increase with a particle size of only 4.2 microns as compared to the average particle size of about 6 micron. When the particle size is adjusted to 5 microns, the increase jumps to over 95 percent. This is a surprising result that would not be anticipated in view of the cited references.

SUMMARY

The Examiner is requested to withdraw his rejection of the Claims as amended in view of the above arguments. Allowance of Claims 1-14 is respectfully requested.

Respectfully submitted,



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